

Geography

Teaching with the Stars

Agriculture and Water



Facilitator's Guide



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Notes to the Facilitator

INTRODUCTION

Geographic literacy is crucial to the future of America. Learning geography creates citizens who are able to understand and make decisions about major issues facing their communities, the United States, and the world, including climate change, water resources, energy dependence, migration, war and regional conflicts, natural and technical hazards, and globalization.

Unfortunately, where geography is taught, many teachers lack sufficient content knowledge and training in geography. For example, a 2002 Roper survey done for National Geographic revealed that 72% of eighth-grade students are taught geography by teachers who do not have a major, minor, or emphasis in geography education in their undergraduate or graduate studies.

In 1985, the National Geographic Society (NGS) began to support a grassroots network of state alliances devoted to improving the quality of geography taught in the schools. The Geography Alliance Network works to improve geography education primarily through summer institutes and other face-to-face professional development initiatives. Because the need is great, and the opportunities for professional development are limited, only a small proportion of those teachers who teach geography are able to participate in Alliance workshops and courses.

Geography: Teaching with the Stars is intended to provide systematic professional development in geography to teachers. It is designed to broaden and complement the impact of the existing National Geographic Society's State Geography Alliance Network. This professional development project emphasizes pedagogical knowledge and skills as well as content knowledge, skills, and applications in geography. Project materials are designed to be accessible via a variety of delivery systems, thus making them available to the widest possible audience of those teaching geography.

PROJECT PURPOSE

The purpose of this project is to contribute substantially to geographic education in middle/junior high and high school. These materials can be used by individual schools and districts, by NGS Alliances, and in pre-service education and training in colleges and universities. Materials can also be adapted for use in alternative certification programs and in educational service centers. The overarching goal is to help prepare geography teachers to achieve the "highly qualified" status as required by No Child Left Behind or other future national education initiatives.

Specifically, this project will:

- Assist teachers in providing effective geographic instruction to their students.
- Help students acquire the knowledge, attitudes, skills, and behaviors related to geography needed to understand and deal with the geographical aspects of important global issues.
- Provide visual reinforcement to learning.

The project is designed to support relevant national geography standards. These standards are presently under revision and will be available in an updated version in December, 2011.

PROJECT MATERIALS

Each *Geography: Teaching with the Stars* instructional unit includes the following video programming, print, and web-based elements that demonstrate how geographic perspectives, concepts, and skills together with relevant instructional and assessment strategies can be used to improve students' ability to understand and deal with the geographical aspect of important issues that affect their daily lives.

In-Class Demonstrations

At the core of every *Geography: Teaching with the Stars* unit are in-class video demonstrations, featuring actual teachers in a real classroom, focusing on content, instructional strategies, and assessment. The agriculture and water unit includes two separate high school in-class demonstrations. You can choose to use either or both in your workshop. Materials contained on the project web site extend the in-class demonstrations. For example, a comprehensive, interactive teacher guide for each unit is available on the web site. Teachers are encouraged to use these guides in their own classrooms and to share their experiences with other teachers on the web site.

Pedagogy Enhancements

Each unit includes a video enhancement that examines, in detail, the instructional and assessment strategies used in the in-class demonstration videos. These enhancements are hosted by teacher educators and include reflections from the featured teachers. In the agriculture and water unit, the pedagogy enhancement video features nine strategies from the in-class demonstrations. Again you can choose which strategies to use in your workshop. If you choose to use a particular strategy, make sure that you also use the in-class demonstration in which it is used. (Both in-class demonstrations and pedagogy segments are labeled by teacher.) The pedagogy enhancements are supported and extended by materials on the project web site. For example, after viewing a segment dealing with probing questions, teachers can go to the web site to learn more about probing questions.

Content Enhancements

Each unit includes a video enhancement that explores the geographic content dealt with in the in-class demonstration, in a real world situation. Each video features one or more content experts who help frame the content issue under consideration. Teachers can learn more about the content in each unit by going to the project web site.

Each of the in-class demonstration, pedagogy enhancement, and content enhancement videos is self-contained and may be used independently. The programs can be easily scheduled for flexible use in a variety of settings. They can be delivered effectively as digital video on storage devices installed in local area networks at schools or via the Internet as streaming video, as part of online professional development. The videos are close-captioned for the hearing impaired.

Video programming is particularly well suited for professional development:

- Video creates a common context in which teachers with varying backgrounds and experiences can examine issues in a positive setting.
- Video provides a vehicle for modeling skills and a base of knowledge upon which teachers can build. For example, viewers can first watch teachers and students in classrooms similar

to theirs using instructional strategies that have proven effective in classrooms. Then viewers can practice using these strategies themselves.

- Video offers a springboard for discussion and interaction that promotes learning, change, and growth. As a familiar and comfortable medium, video provides a non-threatening vehicle for discussion among people.

Web Site

The web site contains ideas for implementing and extending content and pedagogical strategies highlighted in each unit. It also includes links to student-oriented resources. In addition, the web site links to three forums. One forum enables teachers to share ideas, findings, and promising resources. Another forum encourages teachers to ask experts questions about content and pedagogy. And a third forum supports facilitators in forming online learning communities.

Facilitator Guide

Finally, each unit includes a comprehensive facilitator guide developed to assist teacher educators in using these professional development materials in a variety of learning environments. Since materials can be used in very different settings—by individual schools and districts, by NGS Alliances, and in pre-service education and training in colleges and universities—suggestions for both on-line and face-to-face professional development activities are included for each unit.

Conducting Face-to-Face Workshops

Each face-to-face workshop, covering one thematic unit, is designed to last about three or four hours. There are also on-line follow-up activities associated with each of these workshops. Sessions can be scheduled at intervals over several days, weeks, or months to meet the needs of the facilitator and participants.

The professional development materials you need to conduct this workshop—facilitator’s guide with detailed teaching suggestions, transparency masters, and participant handout masters, as well as the video resources and project web site addresses—are provided with this package. To conduct a successful learning event, please consider the important issues listed below.

Preparation—Please view all of the video programs, explore the web site, create an on-line community (see below), read all materials, and complete all activities yourself *before* leading the workshop.

Videos—Each session includes three or four videos, varying in length from six to twelve minutes. You can show each video program without stopping and then conduct the associated activities. It is recommended, however, that you follow the activities as outlined in the workshop teaching suggestions and stop the video when prompted to by the facilitator guide. After showing each segment of the video program, allow participants time to comment on, express opinions, ask questions about the material seen and complete the activities suggested in the guide. If appropriate, you can replay portions of the videos as participants consider the questions and activities.

Internet Access—You will need to have access to the project web site at www.geoteach.org during the workshop.

On-line Learning Community—You will need to establish an on-line learning community for use with follow-up activities associated with each workshop. Complete directions for creating on-line communities (GeoLearning Communities) appear in the next section of this guide.

Location—The workshop should take place in an area that is large enough for individual, small team, and whole group work.

Equipment—You will need a DVD player(s) and monitor(s). Ideally, you will have one video monitor for every 10-12 participants. You will also need an overhead projector that can be connected to a computer.

Handouts—Masters for all participant handouts are included with this guide. The handouts should be duplicated before the workshop begins and be distributed to participants according to the workshop instructions. Masters for overhead transparencies are also included with this guide. They should be duplicated before the workshop begins.

Additional Equipment—You will also need flip charts, chalkboards, or whiteboards with appropriate writing materials to conduct the workshop.

Refreshments—The agenda for the sessions should include one or more breaks at which beverages are offered. Snacks are optional, but water should be available throughout the workshop.

CREATING ON-LINE COMMUNITIES

When you receive your invitation from the project manager to join the *Geography: Teaching with the Stars* online learning communities (GeoLearning Communities) at <http://geoteachersgroup.ning.com>, accept the invitation. You will be taken to the “Main” page of the group web site.

CREATE YOUR GROUP

Follow these steps to create a Group (Community) for your teachers:

1. Click on “Groups”—the tab is located in the top bar on the community site.
2. You will see a list of the groups that have been created so far. To add your group, click on “+Add a Group” (upper right corner, next to your account box.)
3. Fill in the name of your group. Select a name that represents your school, school district, geographic area, or some other distinctive identifier.
4. Add a short description.
5. Make sure you are OK with the Group Address. This address is automatically generated when you enter a group name. If you prefer a different Group Address (URL) you can change it at this point.
6. You can leave the Website box blank at this time.
7. Identify your Location.

CONFIRM YOUR FEATURES, PRIVACY, AND MESSAGES SETTINGS

Features: Make sure the boxes are checked for Comments, Discussion Forum, and Text Box. You may wish to select the RSS Reader as well if you want your group members to be able to get an RSS feed of activity on your Group site.

Privacy: Click on the radio button “Moderated Membership.” (This selection will enable the teachers you invite to join the group, but will not let others join uninvited. Clicking on “Anyone” will let anyone from the public who happens to find your group join without your permission.)

When you select “Moderated Membership” you will have another choice to make. We suggest that you check both the “Members can invite other people to join” and the “Allow people to request membership.”

Messages: Make sure the box is checked, allowing members to send messages to the entire group.

Click on “Add Group”

INVITE MEMBERS TO YOUR GROUP

Next, you will want to invite the teachers in your group to join.

1. Ignore the “Import from Web Address Book” option at the top of the next screen.

2. Click on the “Enter Email Addresses Manually” arrow, which will expand to present you with “Send To” and “Your Message” boxes.
3. Enter the email addresses of the teachers you wish to invite. (Separate the addresses with commas.)
4. Add a brief message inviting them to join.
5. Click “Send Invitations.”
6. Each teacher you invite will get an email message with your invitation and a link to the group page. When the teacher accesses the page s/he will be asked to create a password and complete a profile with name and birth date. When the teacher submits his/her profile s/he will be taken to a page with a message at the top to “...click here to request access from the Group Creator.” Teachers must click as directed.
7. You will get an email message that the teacher has joined the GeoTeachers online community. You will get another message that the teacher is requesting to join your group. You will need to approve the membership before the teacher shows up in your group list.
8. To do this, go to the “Manage Group Members” page in your Admin Options, click on the “Pending” tab, and approve the member.

If you decide you want to invite more teachers to your group, click on the “Invite More People” link at the top right of your group page.

GETTING STARTED WITH YOUR GROUP

While you wait for teachers to accept their invitations, add some content to your group page.

Text Box: Use this space to add an overview of your group’s purpose, summarize what you will be doing as a group, or other content appropriate to your group.

Discussion Forum: Start your first discussion. Since this is your first communication with the teachers in your group, you may wish to make your first discussion a welcome and introductions discussion. (See “Using Discussions” below for more information about discussion topics and instructions for teachers to use the Discussion Forum feature.) This is your main communication tool for your online community!

Comment Wall: The Comment Wall is a handy place to add an announcement about an upcoming training session, provide a permanent link back to the www.geoteach.org web site, or insert a comment encouraging teachers in your group to add comments themselves.

MANAGING YOUR ONLINE COMMUNITY/GROUP SITE

Because you set up your group, you are the Administrator of your group’s page. You will see a box titled “Admin Options” at the top of the 2nd column on your group page.

Edit Group: Clicking on “Edit Group” opens the page you first completed when you created your group. You can make changes to your group here. Make sure to “Save” any changes – or “Cancel” if you don’t want to make changes at this time.

Manage Group Members: Clicking on this link brings up a list of all your group members. On this page you can see who's in your group, check their email addresses, and see their group roles. You can add another administrator to your group by changing a member's role to Administrator, if you wish. You can also remove someone from the group by clicking in the box next to the person's name and then on the "Suspend from Group" tab.

Send Message to Group: Clicking on this link brings up an email/message box. Enter your message Subject and the Body of your message. Click on Send and your message will go to every member of your group.

USING DISCUSSIONS

The Discussion Forum feature of your group page will be your main means of communicating with your group members. You will use Discussions to:

- Give assignments
- Request feedback
- Notify members of upcoming events
- Keep communication flowing

Give Assignments: To give an assignment to your group members, start a discussion topic by clicking on "Start Discussion" in the Discussion Forum box. Give your topic a title that indicates it is an assignment. Write a brief summary of the assignment in the Post box. Include instructions to respond to questions in the lesson by replying to your discussion topic post. Teachers could enter their responses directly into their response, or you may instead want to have them save their responses in a Word document and upload that document with their reply.

Then upload a copy of the lesson document to your discussion post, using the "Attach File(s)" feature. Also upload any readings that are part of the lesson.

Adding links in discussion posts: You can add hyperlinks to a web site by typing the name of the web site, highlighting the name, and then clicking on the ∞ icon, and entering the web address into the box in the popup window.

Request feedback/Notify of upcoming events: Begin a new discussion topic for each new communication with your group. Be sure to include requests for them to reply to your post (rather than starting a new discussion topic.)

Keep communication flowing: The Discussion Forum is a good way to maintain regular communication with your group members. Between assignments, post new discussions on topics of interest to the group—perhaps suggesting relevant readings, providing links to resources you've discovered, or just asking them how things are going. Encourage teachers in your group to initiate their own discussions as well.

NOTE: Make sure teachers know that they should initiate new discussions by starting a new discussion topic, rather than starting on a new topic in a reply to a different discussion topic thread. This will keep the discussion forum better organized and it will be easier to follow new discussions.

Conducting On-Line Workshops

Each on-line workshop covers one thematic unit and consists of four or five lessons for participants to complete. These lessons can be scheduled at intervals over several days, weeks, or months to meet the needs of the facilitator and participants.

The professional development materials needed by participants for this workshop—worksheets and videos—are provided on the project web site. To conduct a successful learning event, please consider the important issues listed below.

Preparation—Please view all of the video programs, explore the web site, create an on-line group (see below), read all materials, and complete all activities yourself before leading the workshop.

Videos—Each session includes three or four videos, varying in length from six to twelve minutes can be accessed from the project web site at www.geoteach.org

On-line Learning Community—You will need to establish an on-line learning community (a group) for use with each workshop. Complete directions for creating on-line communities (GeoLearning Communities) appear in the next section of this guide. You will need to invite all participants in your workshop to join the group, via e-mail. *So having their contact information, before the workshop begins, is essential.*

CREATING ON-LINE GROUPS

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Teachers could enter their responses directly into their response, or you may instead want to have them save their responses in a Word document and upload that document with their reply.

Then upload a copy of the lesson document to your discussion post, using the “Attach File(s)” feature. Also upload any readings that are part of the lesson.

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Request feedback/Notify of upcoming events: Begin a new discussion topic for each new communication with your group. Be sure to include requests for them to reply to your post (rather than starting a new discussion topic.)

Keep communication flowing: The Discussion Forum is a good way to maintain regular communication with your group members. Between assignments, post new discussions on topics of interest to the group—perhaps suggesting relevant readings, providing links to resources you’ve discovered, or just asking them how things are going. Encourage teachers in your group to initiate their own discussions as well.

NOTE: Make sure teachers know that they should initiate new discussions by starting a new discussion topic, rather than starting on a new topic in a reply to a different discussion topic thread. This will keep the discussion forum better organized and it will be easier to follow new discussions.

Face-to-Face Workshop: Agriculture and Water

STATEMENT OF PURPOSE

The purpose of this session is to introduce educators to content, instructional strategies, and resources that can be used in teaching about agriculture and water. Special attention is given to strategies for actively engaging students in geographic learning.

LEARNING OBJECTIVES

After viewing the videos and participating in the activities for the workshop, participants will be able to:

- List some of the changes that have taken place in agriculture over the last 100 years
- Describe the role that water plays in agriculture and ways water can be managed to prevent erosion and runoff after being used in agriculture
- Identify instructional strategies and resources for teaching about agriculture and water.
- Use strategies and materials for teaching about agriculture and water.

VIDEO OVERVIEW

Four video programs are used in the workshop. Two are in-class video demonstrations, featuring actual teachers in real classrooms. (Both of these programs focus on high school classrooms. One focuses on agriculture and water in the U.S. The other compares agriculture and water use in the U.S. and Africa. You can choose to use either or both of these videos depending on the audience for the workshop.) Both focus on content and instructional strategies related to agriculture and water. Another video examines in detail the instructional strategies used in the in-class demonstrations, while the fourth explores the geographic content dealt with in the in-class demonstrations, focusing on a real world situation—a farming operation in Knox County, Indiana.

MATERIALS

- Four Videos
 1. Agriculture and Water: A Case Study of Villwock Farms
 2. Agriculture and Water in the United States (Lori Barber, Sexton High School, Lansing, Michigan)
 3. Agriculture and Water in the U.S. and Africa (Nicole Vickerman, Clark High School, Plano, Texas)
 4. Strategies for Teaching about Agriculture and Water
- Transparency Masters
 - Concept web

- Handout Masters
 - KWL chart.
 - Profiles of Lori Barber and Nicole Vickerman
 - PMI Chart
- Flip charts, chalkboards, or whiteboards with appropriate writing materials

ACTIVITIES

Welcome and Opening

1. Welcome participants to the workshop and introduce yourself and anyone else serving as a workshop host, co-leader, or organizer.
2. Gather names, e-mail addresses, and other contact information from participants. Indicate that this information will be used for networking following the face-to-face workshop.
3. Indicate that this session will focus on agriculture and water and on interactive teaching strategies that can be used to enhance student learning about agriculture and water.
4. If participants do not know one another well, conduct a “get to know you” activity. Ask participants to form pairs and interview each other for about five minutes. Then ask the pairs to introduce each other to the group, stating the person’s name, something interesting or different about the person, and what the person hopes to gain from the workshop. (If there are more than 20 people in the group, have each pair join another pair and only make introductions within each group of four.)

AGRICULTURE AND WATER: A CASE STUDY OF VILLWOCK FARMS

Introduction

1. Distribute a copy of the KWL Chart to each participant. Indicate that a KWL chart helps the user identify prior knowledge and experience as a bridge to a new concept, lesson, or unit. Ask participants to work in pairs to list what they already know about agriculture and its relationship to water in the K (Know) column. Then ask the pairs to list what they would like to learn about agriculture and water in the W (Want to learn) column.
2. Indicate to participants that they are about to see video about agriculture and water that focuses on a farm operation in Knox County, Indiana.
3. Next, play the video.
4. After showing the video, give participants an opportunity to comment on what they have just seen. “Tell me what you heard and saw” is a good starting point for the discussion. Then continue, using the following questions as a guide. Participants may ask you to repeat portions of the video.
 - What are some of the changes that have taken place in agriculture over the past 100 years?
 - What are some of the ways in which water is used in agriculture?

- What are some problems associated with dependence on rainfall and irrigation?
 - Why is the management of water coming off agricultural land so important?
 - What are some strategies that can be used in agriculture to control runoff and erosion?
5. Have participants record what they learned about agriculture and water from the video in the L (Learned) column of the KWL chart.
 6. Ask for volunteers to share what they learned about agriculture and water with the group.

Agriculture and Water: Putting the Pieces Together

1. Project the **Concept Web** on the overhead. Indicate to participants that they are going to use the web to summarize what they have learned about agriculture and water. In the center of the web are the words agriculture and water. Instruct participants to think of all the terms and phrases from the KWL activity, the video, and their own experience which they could use to describe agriculture and water. Record the words and phrases the participants supply on the “legs” of the web. Display the final product in the workshop room either on an overhead or on the board.
2. Indicate to participants that the project maintains a web site. Quickly go through the various links related to the subject of agriculture and water that appear on the web site. These links appear under Teacher Resources/Content Enhancements.

AGRICULTURE AND WATER IN THE UNITED STATES (LORI BARBER)

Indicate to participants that in this section of the workshop they will get a chance to view a high school teacher in Lansing, Michigan, Lori Barber, as she teaches two lessons about agriculture and water. State that the strategies she uses can be used in any context. Distribute a copy of the Lori Barber Profile to each participant. Ask them to examine the profile to learn some background information about Lori.

Overview

Begin by showing the video **Agriculture and Water in the United States** all the way through. After showing the video, give participants an opportunity to comment on what they have just seen. Then work through the video, lesson by lesson.

Lesson One: Amber Waves

1. Indicate to participants that they are going to view Lori’s first lesson again, which focuses on having students explain the distribution of six grain crops in the United States. Ask participants to watch for the strategies she uses, as they view the lesson.
2. Show the first segment of **Agriculture and Water in the United States**. It begins with the title sequence and ends when the words “Lesson Two: Got Milk?” appear on the screen.
3. After they have viewed the segment, ask participants questions like the following:
 - Do you think that the use of cooperative learning (jig saw) was effective in this lesson? Why or why not?
 - Do you agree with Lori that some times students can teach each other better than teachers? Why or why not?

- What was the advantage of using guiding questions in this lesson?
- How do you go about teaching your students to interpret maps? (Indicate that a map interpretation procedure is included in the teacher guide for **Amber Waves** on the project web site).
- What is the teacher's role in this type of lesson?
- Did you see any strategies that you currently use in your own classrooms? Which ones?
- Were there any strategies used that you would like to use in your classrooms? Which ones?
- What other strategies could you use to introduce the distribution of crops?

Record their responses on the board or flip chart

NOTE: Indicate that they will be exploring specific strategies that Lori used in the next section of the workshop.

Lesson Two: Got Milk?

1. Indicate to participants that they are going to view Lori's second lesson again, which involves a role playing activity. Ask participants to watch for the strategies she uses, as they view the segment.
2. Show the second segment of **Agriculture and Water in the United States**. It begins when the words "Lesson Two: Got Milk?" appear on the screen and ends when the credits appear.
3. After they have viewed the segment, ask participants questions like the following:
 - What was the purpose of using guiding questions in this lesson?
 - What should be the teacher's role in a role playing activity?
 - What are the instructional advantages of using role playing?
 - How would you prepare students to participate in a role playing activity?
 - How would you judge the overall effectiveness of this lesson? Why?

Record their responses on the board or flip chart

4. Indicate to participants that there are resources on the project web site related specifically to this in-class demonstration. Quickly show the links to the complete teacher guide used for the lessons shown in this in-class demonstration. They appear on the Teacher Resources page, under Lesson Plans.

AGRICULTURE AND WATER IN THE U.S AND AFRICA (NICOLE VICKERMAN)

Indicate to participants that in this section of the workshop they will get a chance to view a high school teacher in Plano, Texas, Nicole Vickerman, as she teaches four lessons about agriculture and water in a unit on Africa. State that the strategies she uses can be used in any context. Distribute a copy of the Nicole Vickerman Profile to each participant. Ask them to examine the profile to learn some background information about Nicole.

Overview

Begin by showing the video **Agriculture and Water in the U.S. and Africa** all the way through. After showing the video, give participants an opportunity to comment on what they have just seen. Then work through the video, lesson by lesson.

Lesson One: By the Numbers

1. Indicate to participants that they are going to view Nicole's first lesson again, in which students examine and analyze maps, tables, and graphs dealing with agriculture in the United States and Africa. Ask participants to watch for the strategies she uses, as they view the segment.
2. Show the first segment of **Agriculture and Water in the U.S. and Africa**. It begins with the title sequence and ends when the words "Lesson Two: Agriculture and Water" appear on the screen.
3. After they have viewed the segment, ask participants questions like the following:
 - What advantages do you see in having students work in cooperative groups?
 - What procedures do you use to teach students how to analyze documents?
 - What are the instructional advantages of having students work at learning stations?
 - What was the advantage of having students use a similarities and differences graphic organizer in this lesson?
 - What was the teacher's role in this lesson?
 - How effective do you think the summative assessment was that Nicole used? How would you have assessed student learning in this lesson?
 - What did you like most and least about the lesson? Why?
 - Did you see any strategies that you currently use in your own classrooms? Which ones?
 - Were there any strategies used that you would like to use in your classrooms? Which ones?

Record their responses on the board or flip chart.

NOTE: Indicate that they will be exploring specific strategies that Nicole used in the next section of the workshop.

Lesson Two: Agriculture and Water

1. Indicate to participants that they are going to view Nicole's second lesson again, in which student read articles about water and agriculture in the U.S. and Africa and share what they learned. Ask participants to watch for the strategies she uses, as they view the segment.
2. Show the second segment of **Agriculture and Water in the U.S. and Africa**. It begins when the words "Lesson Two: Agriculture and Water" appear on the screen and ends when the words "Lesson Three: The Geography of . . ." appear on the screen.
3. After they have watched the segment, ask participants questions like the following:

- In this lesson Nicole used a ball toss strategy to determine who would share next. Do you think this is an effective strategy for maintaining student involvement? Why or why not?
- What are some other strategies that can be used to maintain student involvement during a sharing session?
- How did the climograph activity contribute to student learning in this lesson?
- What are some other strategies that could have been used to conclude this lesson?
- How would you judge the overall effectiveness of this lesson? Why?

Record their responses on the board or flip chart.

Lesson Three: The Geography of . . .

1. Indicate to participants that they are going to view Nicole’s third lesson again, in which students choose topics that interest them, do research on those topics, and presents their findings to the class. Ask participants to watch for the strategies she uses, as they view the segment.
2. Show the third segment of **Agriculture and Water in the U.S. and Africa**. It begins when the words “Lesson Three: The Geography of . . .” appear on the screen and ends when the words “Lesson Four: Dead Zones” appear on the screen.
3. After they have watched the segment, ask participants to answer questions like the following:
 - What are the instructional advantages of having students choose their own topics for study?
 - What do you see as the teacher’s role in this type of a lesson?
 - Do you agree with Nicole that even when students are working on their own, a graphic organizer, such as SHEEP, is helpful? Why or why not?
 - The lesson ends with students making presentations. Do you have students make presentations in your classes? How do students prepare to make their presentations?
 - How would you judge the overall effectiveness of this lesson? Why?

Lesson Four: Dead Zones

1. Indicate to participants that they are going to view Nicole’s fourth lesson again, in which students learn about dead zones in the United States and Africa. Ask participants to watch for the strategies she uses, as they view the segment.
2. Show the fourth segment of **Agriculture and Water in the U.S. and Africa**. It begins when the words “Lesson Four: Dead Zones” appear on the screen and ends when the credits appear.
3. After they have watched the segment, ask participants to answer questions like the following:
 - How effective was the pair-share question writing and answering activity in getting students actively involved in reading?

- Would you use the animal noises strategy for forming cooperative learning groups in the classroom? Why or why not?
 - What are some other strategies that can be used for forming cooperative learning groups?
 - What are the instructional advantages of using a Venn Diagram during the cooperative learning segment of this lesson?
 - How have you used a Venn Diagram in your own teaching?
 - How did you respond to Nicole’s use of the popcorn activity in this lesson?
4. Indicate to participants that there are resources on the project web site related specifically to this in-class demonstration. Quickly show the links to the complete teacher guide used for the lessons shown in the in-class demonstration. They appear on the Teacher Resources page, under Lesson Plans.

STRATEGIES FOR TEACHING ABOUT AGRICULTURE AND WATER

Indicate to participants that the next section of the workshop will focus in more detail on two of the instructional strategies used in Lori Barber’s classroom: using guiding questions and role playing. It also focuses on seven of the instructional strategies used in Nicole Vickerman’s classroom: probing questions, visual prompts, graphic organizers, similarities and differences, varied reading strategies, student engagement and choices, and formative and summative assessment.

NOTE: You can choose which strategies you wish to explore with workshop participants.

Distribute a copy of PMI chart to each participant. Indicate that a PMI Chart can be used to help them evaluate each of the strategies explored in this section of the workshop.

Using Guiding Questions

1. Begin by asking participants questions like the following:
 - In your opinion, what function does using guiding questions play in instruction?

Record their responses on the board or flip chart.
2. Play the Guiding Questions segment of the **Strategies for Teaching about Agriculture and Water** video. After they have viewed the segment, ask participants questions like the following. Ask for volunteers to share their answers with the class.
 - How did Lori use guiding questions in her classes?
 - How would you use guiding questions in your classroom?
3. Show the links to using guiding questions. They can be found under Teaching Resources/Pedagogy Enhancement on the web site.

Probing Questions

1. Begin by asking participants to answer questions like the following:
 - What are the instructional advantages of asking probing questions?
 - How do you use probing questions in your own classroom?

Record their responses on the board or flip chart.

2. Play the Probing Questions segment of the **Strategies for Teaching about Agriculture and Water** video. Ask participants to look for additional answers to the first question posed above, as they watch the video. After they have viewed the segment, ask participants to respond to questions like the following. Ask for volunteers to share their answers with the class.
 - What did you learn from the segment that adds to your understanding of the use of probing questions in the classroom?
3. Show the links to using probing questions. They can be found under Teaching Resources/Pedagogy Enhancement on the web site.

Visual Prompts

1. Play the Visual Prompts segment of the **Strategies for Teaching about Agriculture and Water** video. After they have viewed the segment, ask participants to respond to questions like the following. Ask for volunteers to share their answers with the class.
 - How do you prepare students to view a video or other visual prompts?
 - What are the advantages and disadvantages of using visual prompts in instruction?
 - How would you use climographs or cartograms in your classroom?
2. Show the links to using visual prompts. They can be found under Teaching Resources/Pedagogy Enhancement on the web site.

Graphic Organizers

1. Begin by asking participants to respond to questions like the following:
 - What are some instructional advantages of using graphic organizers in the classroom?
2. Play the Graphic Organizers segment of the **Strategies for Teaching about Agriculture and Water** video. After they have viewed the segment, ask participants to respond to questions like the following. Ask for volunteers to share their answers with the class.
 - In what instructional situations would you use graphic organizers?
 - What graphic organizers would you use and why?
3. Show the links to using graphic organizers . They can be found under Teaching Resources/Pedagogy Enhancement on the web site.

Similarities and Differences

1. Play the Similarities and Differences segment of the **Strategies for Teaching about Agriculture and Water** video. After they have viewed the segment, ask participants to respond to questions like the following. Ask for volunteers to share their answers with the class.
 - Do you agree with Mark Wellborn that searching for similarities and differences between two or more sets of information is one of the most complex methods of investigating and processing complex, abstract information? Why or why not?

- Do you focus on similarities and differences in your classroom? How do you prepare students for identifying similarities and differences?
2. Show the links to using similarities and differences. They can be found under Teaching Resources/Pedagogy Enhancement on the web site.

Varied Reading Strategies

1. Begin by asking participants to respond to questions like the following:
 - What are some strategies that you use to get students actively engaged in reading?
2. Play the Varied Reading Strategies segment of the **Strategies for Teaching about Agriculture and Water** video. After they have viewed the segment, ask participants to respond to questions like the following. Ask for volunteers to share their answers with the class.
 - What did you learn from the segment that adds to your understanding of strategies to get students actively involved in their reading?
 - How would you use what you learned from this segment in your classroom?
3. Show the links to using varied reading strategies . They can be found under Teaching Resources/Pedagogy Enhancement on the web site.

Student Engagement and Choices

1. Play the Student Engagement and Choices segment of the **Strategies for Teaching about Agriculture and Water** video. After they have viewed the segment, ask participants to respond to questions like the following. Ask for volunteers to share their answers with the class.
 - Why should teachers emphasize student engagement in classroom instruction?
 - Are there any strategies that you saw in this segment that you would want to adopt or adapt for use in your classroom? Why?
 - Under what circumstances would you provide students with opportunities to choose their own topics to pursue?
2. Show the links to using student engagement and choices. They can be found under Teaching Resources/Pedagogy Enhancement on the web site.

Role Playing

1. Play the Role Playing segment of the **Strategies for Teaching about Agriculture and Water** video. After they have viewed the segment, ask participants to respond to questions like the following. Ask for volunteers to share their answers with the class.
 - What are the strengths and weaknesses of role playing in the classroom, in your opinion?
 - How would/do you use role playing in the classroom?
2. Show the links to using role playing. They can be found under Teaching Resources/Pedagogy Enhancement on the web site.

Formative and Summative Assessment

1. Play the Formative and Summative Assessment segment of the **Strategies for Teaching about Agriculture and Water** video. After they have viewed the segment, ask participants to respond to questions like the following. Ask for volunteers to share their answers with the class.
 - What are some of the strategies that you use to gather formative assessment data in your classroom?
 - What are some of the most effective summative assessment strategies that you use? Why do you consider them effective?
 - How do you use assessment results to improve instruction in your classroom?
2. Show the links to using formative and summative assessment. They can be found under Teaching Resources/Pedagogy Enhancement on the web site.

FOLLOW-UP

1. Tell participants that they are expected to teach at least one lesson on agriculture and water in their own classrooms, as part of the requirements for this unit.
 - They can work with another workshop member or on their own.
 - They must use or adapt all or part of a lesson plan from the in-class demonstrations they saw in this unit. Lesson plans can be downloaded from the project web site.
2. Alert participants that you are going to invite them to join an on-line learning community for members of this workshop. (Give them a specific date on which invitations will be sent.) They will need to accept the invitation to complete the unit requirements.
3. Ask participants to use the on-line community (group) to share their experiences and get feedback from you and other workshop participants, as they prepare, teach, and reflect on teaching their lessons.
4. Tell them that they should also use the on-line group to share all materials generated as part of this exercise, for example: customized lesson plans, readings on agriculture and water, interesting teaching strategies, assessment strategies, and so on.
5. Finally, encourage participants to use the two general forums (no invitation required) on the project web site: *GeoForum* allows teachers to share ideas, questions, and concerns about teaching geography and to identify and exchange ideas, findings, and promising resources with others and the *Ask Primo Meridian Forum* to ask questions of project personnel and content/pedagogical area experts.

Note: You should repeat the above directions in your first communication with the participants when they join your group. Use the Discussion Forum and begin a new discussion topic for this post. Here is a sample post:

Instructions:

Your facilitator has initiated a group discussion post on our group page about the lesson you are going to teach. In this discussion you will respond in writing to questions or comments from me or other

participants. Write your responses in Word documents and submit them by attaching the documents with a reply to this post.

You are expected to teach at least one lesson on agriculture and water in your own classroom as part of the requirements for this unit.

- You can work with another workshop member or on your own.
- You must use or adapt all or part of a lesson plan for the in-class demonstrations you saw in this unit. It can be downloaded from the project web site.

Share your experiences and get feedback from your facilitator and other workshop participants, as you prepare, teach, and reflect on teaching your lessons.

Also share all materials generated as part of this exercise, for example: customized lesson plans, readings on agriculture and water, interesting teaching strategies, assessment strategies, and so on.

Finally, you are encouraged to use the two general forums (no invitation required) on the project web site: **GeoForum** allows teachers to share ideas, questions, and concerns about teaching geography and to identify and exchange ideas, findings, and promising resources with others and the **Ask PrimoMeridian Forum** to ask questions of project personnel and content/pedagogical area experts. Both forums can be found at <http://geoteach.org/forums/index.php>.

CLOSING

1. Ask participants to develop a series of short statements about agriculture and water and teaching about these topics, based on their own experiences, on all that they have seen in the videos, and on information they have learned in their discussions. Ask for volunteers to share their statements with the group.
2. Thank participants for engaging in the session. Remind them of the time, date, location, and focus of the next workshop.

On-Line Workshop: Agriculture and Water

STATEMENT OF PURPOSE

The purpose of this session is to introduce educators to content, instructional strategies, and resources that can be used in teaching about agriculture and water. Special attention is given to strategies for actively engaging students in geographic learning.

LEARNING OBJECTIVES

After viewing the videos and participating in the activities for the workshop, participants will be able to:

- List some of the changes that have taken place in agriculture over the last 100 years
- Describe the role that water plays in agriculture and ways water can be managed to prevent erosion and runoff after being used in agriculture
- Identify instructional strategies and resources for teaching about agriculture and water.
- Use strategies and materials for teaching about agriculture and water.

VIDEO OVERVIEW

Four video programs are used in the workshop. Two are in-class video demonstrations, featuring actual teachers in real classrooms. (Both of these programs focus on a high school classrooms. One focuses on agriculture and water in the U.S. The other compares agriculture and water use in the U.S. and Africa. You can choose to use either or both of these videos depending on the audience for the workshop.) Both focus on content and instructional strategies related to agriculture and water. Another video examines in detail the instructional strategies used in the in-class demonstrations, while the fourth explores the geographic content dealt with in the in-class demonstrations, focusing on a real world situation—a farming operation in Knox County, Indiana.

ACTIVITIES

Each of the following lessons is available as a PDF file, with all links included, on the Facilitator's Guide opening page for this unit, on this web site. Upload a copy of each of the lessons to your discussion post, using the "Attach File(s)" feature, following the schedule you developed for the workshop.

Lesson One:

Agriculture and Water: A Case Study of Villwock Farms

Instructions:

Your facilitator has initiated this lesson through a discussion topic (post) on the group page. In this lesson you will respond in writing to several prompts (questions.) Write your responses in a Word document and submit this document by attaching it with a reply to the facilitator's post.

INTRODUCTION

- Begin by clicking on [KWL](#). A KWL chart helps the user identify prior knowledge and experience as a bridge to a new concept, lesson, or unit. List what you already know about agriculture and water in the K (Knowledge) column. Then list what you would like to learn about agriculture and water in the W (Want to know) column.
- You are about to see a video about agriculture and water that focuses on a farm operation in Knox County, Indiana.
- Click on [Agriculture and Water: A Case Study of Villwock Farms](#) to start the video.
- When you have seen the video, submit your responses to the prompts below to your facilitator.
 - What are some of the changes that have taken place in agriculture over the past 100 years?
 - What are some of the ways in which water is used in agriculture?
 - What are some problems associated with dependence on rainfall and irrigation?
 - Why is the management of water coming off agricultural land so important?
 - What are some strategies that can be used in agriculture to control runoff and erosion?
- Record what you learned about agriculture and water from the video in the L (learned) column of the chart.
- Share the information contained in your completed KWL chart with the group by replying to your facilitator about this lesson. Also, provide each group member with some feedback on his or her KWL charts.

AGRICULTURE AND WATER: PUTTING THE PIECES TOGETHER

- Click on the [Concept Web](#). You can use the web to summarize what you learned about agriculture and water. The words “agriculture and water” are written in the center of the web. Think of all the terms and phrases from the KWL activity, the video, and your own experience that can be used to describe agriculture and water. Record these words and phrases on the “legs” of the web.

- Share the information contained in your completed concept web with the group. Also, provide each of your group members with some feedback on their concept webs.

Additional Resources on Agriculture and Water

You can learn more about resources on agriculture and water by visiting the project web site at www.geoteach.org. Go through the various links related to the subject of agriculture and water that appear on the web site. These links can be found under Teacher Resources, Content Enhancements.

Lesson Two:

In-Class Demonstrations

Instructions:

Your facilitator has initiated this lesson through a discussion topic (post) on the group page. In this lesson you will respond in writing to several prompts (questions). Write your responses in a Word document and submit the document by attaching it with a reply to the facilitator's post.

AGRICULTURE AND WATER IN THE UNITED STATES , LORI BARBER, SEXTON HIGH SCHOOL, LANSING, MICHIGAN

In this portion of the lesson you will get a chance to view Lori Barber as she teaches two lessons about agriculture and water. The strategies she uses can be used in any context. Click on the [Lori Barber Profile](#) to learn more about Lori.

LESSON ONE: AMBER WAVES

- Next, work your way through the [Agriculture and Water in the United States](#) video, lesson by lesson. First watch Lori's first lesson, which focuses on having students explain the distribution of six grain crops in the United State. It begins with the title sequence and ends when the words "Lesson Two: Got Milk?" appear on the screen. Watch for the strategies she uses as you view the lesson.
- After you have viewed the segment, submit your responses to the following prompts to your facilitator.
 - Do you think that the use of cooperative learning (jig saw) was effective in this lesson? Why or why not?
 - Do you agree with Lori that some times students can teach each other better than teachers? Why or why not?
 - What was the advantage of using guiding questions in this lesson?
 - How do you go about teaching your students to interpret maps? NOTE: A map interpretation procedure is included in the teacher guide for **Amber Waves** on the project web site).
 - What is the teacher's role in this type of lesson?
 - Did you see any strategies that you currently use in your own classrooms? Which ones?
 - Were there any strategies used that you would like to use in your classrooms? Which ones?
 - What other strategies could you use to introduce the distribution of crops?

LESSON TWO: GOT MILK?

- Now watch the second lesson in the [Agriculture and Water in the United States](#) video, which involves a role playing activity. Watch for the teaching strategies that are part of this lesson. It begins when the words “Lesson Two: Got Milk?” appear on the screen and ends when the credits appear on the screen. As you view the segment, watch for the teaching strategies that are used.
- After you have viewed the segment, submit your responses to the following prompts to your facilitator.
 - What was the purpose of using guiding questions in this lesson?
 - What should be the teacher’s role in a role playing activity?
 - What are the instructional advantages of using role playing?
 - How would you prepare students to participate in a role playing activity?
 - How would you judge the overall effectiveness of this lesson? Why?

You can learn more about teaching about water and agriculture by visiting the project web site at http://geoteach.org/teacher_resources/index.php. The complete teacher guide for Lori’s lessons appears on the project web site at http://geoteach.org/teacher_resources/index.php.

AGRICULTURE AND WATER IN THE U.S. AND AFRICA, NICOLE VICKERMAN, CLARK HIGH SCHOOL, PLANO, TEXAS

In this portion of Lesson Two, you will get a chance to view Nicole Vickerman as she teaches four lessons about agriculture and water in a unit on Africa. The strategies she uses can be used in any context. Click on the [Nicole Vickerman Profile](#) to learn more about Nicole.

LESSON ONE: BY THE NUMBERS

- Next, work your way through the [Agriculture and Water in the U.S. and Africa](#) video, lesson by lesson. First watch Nicole’s first lesson in which students examine and analyze maps, tables, and graphs dealing with agriculture in the United States and Africa. It begins with the title sequence and ends when the words “Day Two: Agriculture and Water” appear on the screen. As you view the segment, watch for the strategies that she uses in the lesson.
- After you have viewed the segment, submit your responses to the following prompts to your facilitator.
 - What advantages do you see in having students work in cooperative groups?
 - What procedures do you use to teach students how to analyze documents?
 - What are the instructional advantages of having students work at learning stations?
 - What was the advantage of having students use a similarities and differences graphic organizer in this lesson?
 - What was the teacher’s role in this lesson?
 - How effective do you think the summative assessment was that Nicole used? How would you have assessed student learning in this lesson?
 - What did you like most and least about the lesson? Why?
 - Did you see any strategies that you currently use in your own classrooms? Which ones?
 - Were there any strategies used that you would like to use in your classrooms? Which ones?

LESSON TWO: AGRICULTURE AND WATER

- Now watch the second lesson of the [Agriculture and Water in the U.S. and Africa](#) video in which student read articles about water and agriculture in the U.S. and Africa and share what they learned. It begins when the words “Day Two: Agriculture and Water” appear on the screen and ends when the words “Day Three: The Geography of . . .” appear on the screen. As you view the segment, watch for the strategies that Nicole uses.
- After you have viewed the segment, submit your responses to the following prompts to your facilitator.
 - In this lesson Nicole used a ball toss strategy to determine who would share next. Do you think this is an effective strategy for maintaining student involvement? Why or why not?

- What are some other strategies that can be used to maintain student involvement during a sharing session?
- How did the climograph activity contribute to student learning in this lesson?
- What are some other strategies that could have been used to conclude this lesson?
- How would you judge the overall effectiveness of this lesson? Why?

LESSON THREE: THE GEOGRAPHY OF . . .

- Now watch the third lesson in the [Agriculture and Water in the U.S. and Africa](#) video in which students choose topics that interest them, do research on those topics, and present their findings to the class. It begins when the words “Day Three: The Geography of . . .” appear on the screen and ends when the words “Day Four: Dead Zones” appear on the screen. As you view the segment, watch for the strategies that Nicole uses.
- After you have viewed the lesson, submit your responses to the following prompts to your facilitator.
 - What are the instructional advantages of having students choose their own topics for study?
 - What do you see as the teacher’s role in this type of a lesson?
 - Do you agree with Nicole that even when students are working on their own, a graphic organizer, such as SHEEP, is helpful? Why or why not?
 - The lesson ends with students making presentations. Do you have students make presentations in your classes? How do students prepare to make their presentations?
 - How would you judge the overall effectiveness of this lesson? Why?

LESSON FOUR: DEAD ZONES

- Now watch the fourth lesson of the [Agriculture and Water in the U.S. and Africa](#) video, in which students learn about dead zones in the United States and Africa. It begins when the words “Day Four: Dead Zones” appear on the screen and ends when the credits appear. As you view the segment, watch for the strategies that Nicole uses.
- After you have viewed the segment, submit your responses to the following prompts to your facilitator.
 - How effective was the pair-share question writing and answering activity in getting students actively involved in reading?
 - Would you use the animal noises strategy for forming cooperative learning groups in the classroom? Why or why not?
 - What are some other strategies that can be used for forming cooperative learning groups?
 - What are the instructional advantages of using a Venn Diagram during the cooperative learning segment of this lesson?

- How have you used a Venn Diagram in your own teaching?
- How did you respond to Nicole's use of the popcorn activity in this lesson?

You can learn more about teaching about agriculture and water by visiting the project web site at http://geoteach.org/teacher_resources/index.php. The complete teacher guide for Nicole's lessons appears on the project web site at http://geoteach.org/teacher_resources/index.php.

Lesson Three:

Strategies for Teaching about Agriculture and Water

Instructions:

Your facilitator has initiated this lesson through a discussion topic (post) on the group page. In this lesson you will respond in writing to several prompts (questions.) Write your responses in a Word document and submit this document by attaching it with a reply to the facilitator's post.

This activity focuses in more detail on two of the instructional strategies used in Lori Barber's classroom: using guiding questions and role playing. It also focuses on seven of the instructional strategies used in Nicole Vickerman's classroom: probing questions, visual prompts, graphic organizers, similarities and differences, varied reading strategies, student engagement and choices, and formative and summative assessment. You can choose which strategies you wish to explore. Click on the [PMI Chart](#). Use the chart to help you evaluate each of the strategies that you explore in this lesson.

USING GUIDING QUESTIONS

- Submit your responses to the following prompt to your facilitator.
 - In your opinion, what function does using guiding questions play in instruction?
- Click on the [Strategies for Teaching about Agriculture and Water](#) video. Play the [Using Guiding Questions](#) segment of this video.
- After you have viewed the segment, submit your responses to the following prompts to your facilitator.
 - How did Lori use guiding questions in her classes?
 - How would you use guiding questions in your classroom?

You can learn more about using guiding questions by visiting the project web site at http://geoteach.org/teacher_resources/index.php

PROBING QUESTIONS

- Begin this section by submitting your responses to the following prompts to your facilitator.
 - What are the instructional advantages of asking probing questions?
 - How do you use probing questions in your own classroom?
- Play the [Probing Questions](#) segment of the [Strategies for Teaching about Agriculture and Water](#) video. Look for additional answers to the first question just posed, as you watch the video.

- After you have viewed the segment, submit your responses to the following prompt to your facilitator.
 - What did you learn from the segment that adds to your understanding of the use of probing questions in the classroom?

You can learn more about using probing questions by visiting the project web site at http://geoteach.org/teacher_resources/index.php.

VISUAL PROMPTS

- Play the [Visual Prompts](#) segment of the Strategies for Teaching about Agriculture and Water video.
- Submit your responses to the following prompts to your facilitator.
 - How do you prepare students to view a video or other visual prompts?
 - What are the advantages and disadvantages of using visual prompts in instruction?
 - How would you use climographs or cartograms in your classroom?

You can learn more about using visual prompts by visiting the project web site at http://geoteach.org/teacher_resources/index.php.

GRAPHIC ORGANIZERS

- Submit your responses to the following prompts to your facilitator.
 - What are some instructional advantages of using graphic organizers in the classroom?
- Click on the [Graphic Organizers](#) segment of the Strategies for Teaching about Agriculture and Water video.
- After you have viewed the segment, submit your responses to the following prompts to your facilitator.
 - In what instructional situations would you use graphic organizers?
 - What graphic organizers would you use and why?

You can learn more about using graphic organizers in the classroom by visiting the project web site at http://geoteach.org/teacher_resources/index.php

SIMILARITIES AND DIFFERENCES

- Play the [Similarities and Differences](#) segment of the Strategies for Teaching about Agriculture and Water video.
- After you have viewed the segment, submit your responses to the following prompt to your facilitator.
 - Do you agree with Mark Wellborn that searching for similarities and differences between two or more sets of information is one of the most complex methods of investigating and processing complex, abstract information? Why or why not?

- Do you focus on similarities and differences in your classroom? How do you prepare students for identifying similarities and differences?

You can learn more about using similarities and differences by visiting the project web site at http://geoteach.org/teacher_resources/index.php.

VARIED READING STRATEGIES

- Submit your responses to the following prompt to your facilitator.
 - What are some strategies that you use to get students actively engaged in reading?
- Play the [Varied Reading Strategies](#) segment of the Strategies for Teaching about Agriculture and Water video.
- Submit your responses to the following prompts to your facilitator.
 - What did you learn from the segment that adds to your understanding of strategies to get students actively involved in their reading?
 - How would you use what you learned from this segment in your classroom?

You can learn more about using varied reading strategies by visiting the project web site at http://geoteach.org/teacher_resources/index.php.

STUDENT ENGAGEMENT AND CHOICES

- Play the [Student Engagement and Choices](#) segment of the Strategies for Teaching about Agriculture and Water video.
- Submit your responses to the following prompts to your facilitator.
 - Why should teachers emphasize student engagement in classroom instruction?
 - Are there any strategies that you saw in this segment that you would want to adopt or adapt for use in your classroom? Why?
 - Under what circumstances would you provide students with opportunities to choose their own topics to pursue?

You can learn more about student engagement and choices by visiting the project web site at http://geoteach.org/teacher_resources/index.php.

ROLE PLAYING

- Play the [Role Playing](#) segment of the Strategies for Teaching about Agriculture and Water video.
- Submit your responses to the following prompts to your facilitator.
 - What are the strengths and weaknesses of role playing in the classroom, in your opinion?
 - How would/do you use role playing in the classroom?

You can learn more about role playing by visiting the project web site at http://geoteach.org/teacher_resources/index.php.

FORMATIVE AND SUMMATIVE ASSESSMENT

- Play the [Formative and Summative Assessment](#) segment of the Strategies for Teaching about Agriculture and Water video.
- Submit your responses to the following prompts to your facilitator.
 - What are some of the strategies that you use to gather formative assessment data in your classroom?
 - What are some of the most effective summative assessment strategies that you use? Why do you consider them effective?
 - How do you use assessment results to improve instruction in your classroom?

You can learn more about formative and summative assessment by visiting the project web site at http://geoteach.org/teacher_resources/index.php.

Lesson Four:

Follow-Up

Instructions:

Your facilitator has initiated this lesson through a discussion topic (post) on the group page. In this lesson you will respond in writing to several prompts (questions.) Write your responses in Word documents and submit them by attaching the documents with a reply to the facilitator's post.

You are expected to teach at least one lesson on agriculture and water in your own classroom, as part of the requirements for this unit.

- You can work with another workshop member or on your own.
- You must use or adapt all or part of a lesson plan from the in-class demonstrations you saw in this unit. Lesson plans can be downloaded from the project web site.

Share your experiences and get feedback from your facilitator and other workshop participants, as you prepare, teach, and reflect on teaching your lesson on agriculture and water.

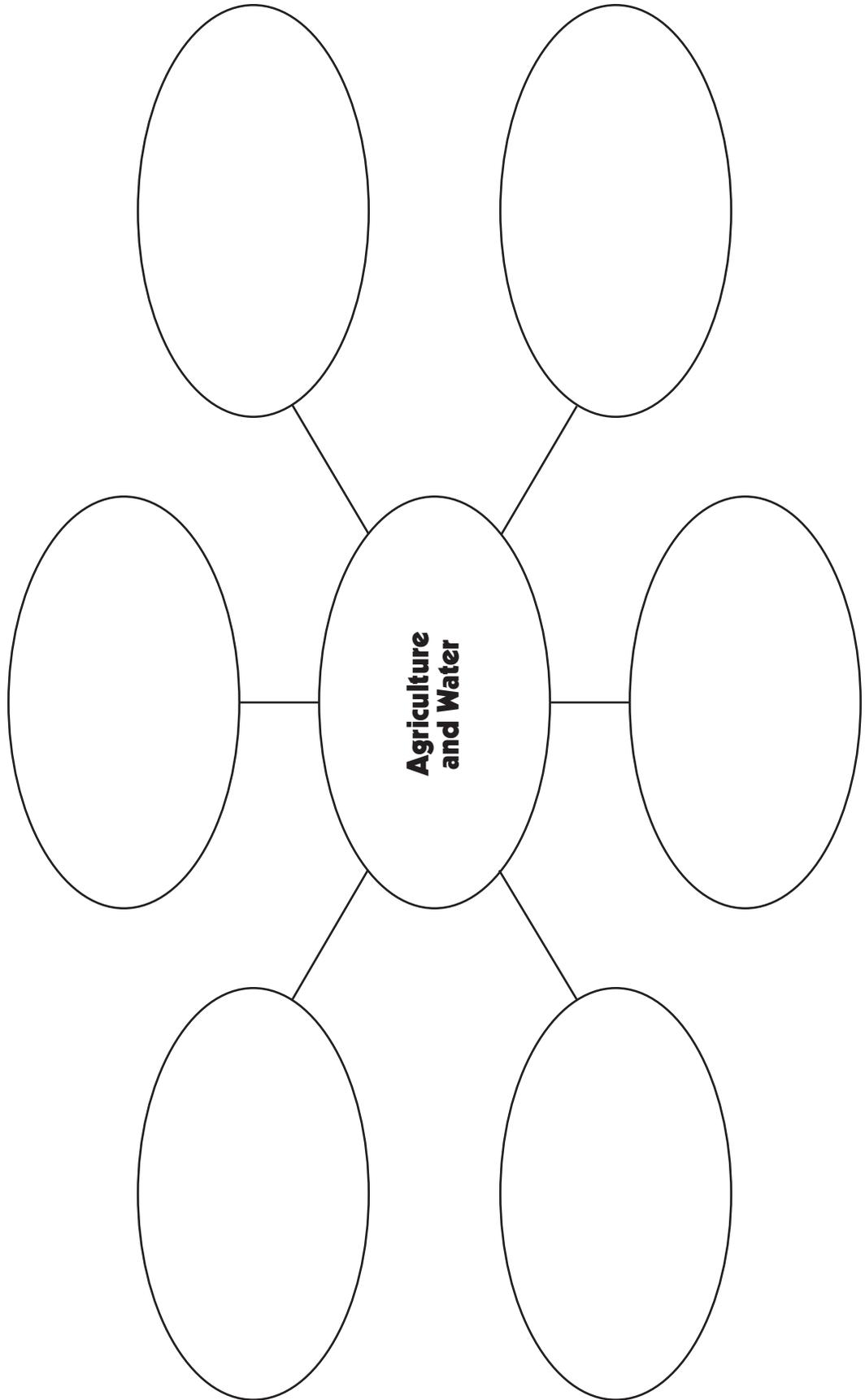
Also share all materials generated as part of this exercise, for example: customized lesson plans, readings on agriculture and water, interesting teaching strategies, assessment strategies, and so on.

Finally, you are encouraged to use the two general forums (no invitation required) on the project web site: [GeoForum](#) allows teachers to share ideas, questions, and concerns about teaching geography and to identify and exchange ideas, findings, and promising resources with others and the [Ask Primo Meridian Forum](#) to ask questions of project personnel and content/pedagogical area experts. Both forums can be found at <http://geoteach.org/forums/index.php>

KWL Chart

K What I Know	W What I Want to Know	L What I Learned

Concept Web: Agriculture and Water



Profile—Lori Barber

LORI BARBER

As a child, Lori could not decide whether she wanted to be a nurse or a teacher. Then, two things happened. She served in the U.S. Army for two years during the cold war (1987-88) in West Germany, and got to see something of the world. And, when she returned to the US and was serving in the Michigan National Guard, she enrolled in Morris Thomas' world regional geography class at Lansing Community College. Her experience being stationed overseas and the passion that Professor Thomas had for his subject drew her to geography. So, after graduating with an Associates Degree from Lansing Community College, she went on to Central Michigan University as a Secondary Education student with a major in geography and a minor in history. She was mentored there by Dr. Michael Libbe. Upon graduation, she came back to Lansing to teach, and started at Sexton High School in 1995. She later got her Masters Degree in geography teaching from Western Michigan University and is working there on a Ph.D. in Educational Leadership.

Lori feels that her military experience gave her the confidence to be an effective teacher. When she was in high school she was that shy, quiet kid, who usually knew most of the answers but was afraid to raise her hand. So she could never get in front of her peers. The military gave her a lot more self confidence. And with that self confidence she came back to the US and decided that maybe she could be a teacher, maybe she could actually get up in front of people and share the knowledge she had gained.

Lori teaches four classes of freshman world history and geography. She also teaches the AP Human Geography class. Like most teachers, she has seen many changes during her 16 years in teaching. For example, the curriculum for freshmen started with global studies, went to world geography, and now it is world history and geography. A teacher needs to be flexible.

When preparing her lessons, Lori begins by looking at the establish curriculum—what is expected in a particular course. But, then she tries to use a variety of strategies to meet the objectives because she recognizes that her students learn in so many different ways. She has a very high transition rate in her school, special education students, students reading at different levels, and several ESL kids. She must accommodate all of these students in her planning of units and individual lessons. So she consciously considers, for example, the multiple intelligences as she prepares—one lesson may focus on a debate, another might involve movement, another could include drawing maps, while another focuses on cooperative learning.

Lori is active in a variety of professional organizations both at the state and national levels. . She feels that her involvement with these organizations has made her a much better teacher. She does workshops in geography for secondary school teachers helping them integrate geography into different areas of social studies education. She goes to conferences in Lansing, in other parts of Michigan, and across the country. Doing workshops and attending sessions at conferences exposes her to ideas and resources which add variety to her classroom. But, more than that, she gets to interact with other teachers and with content area experts. She feels that collaboration is the best thing in education. If you don't have it you are not going to grow as a teacher.

Profile—Nicole Vickerman

NICOLE VICKERMAN

Nicole completed her undergraduate degree at the University of Texas, at Austin. She wanted to be a history teacher, but when she did her student teaching she was assigned to teach world geography. Initially, she was not happy with the assignment, but as soon as she got into that classroom, it just clicked for her and it has been something that she has loved ever since. So she has taught world geography at the same school for her entire career. She even went to Clark High School as a student. She was hired by one of her former teachers who was someone she wanted to emulate. She says, “He had always been somebody who was really exciting in the classroom and always had very active lessons and was always challenging and so that was the kind of teacher that I wanted to be.” After teaching for several years, she went on to earn a Master’s Degree in Curriculum and Instruction from the University of North Texas at Denton

Nicole is the World Geography Team Leader at Clark High School. She teaches World Geography, Pre AP/IB World Geography, and online World Geography..

Nicole learned quickly that even though she had some background in the subject matter and strategies needed to teach world geography, she needed much more. So, she spends a lot of time participating in professional conferences and workshops. She makes constant improvement one of her goals. As a result, she is active in professional organizations at the local, state, and national level. She is involved in the local council for the social studies, which she views as a network of teachers keeping each other informed on everything from legislation affecting education to new brain research. She has attended and presented at the Texas Council for the Social Studies, the National Council for Geographic Education, and the National Council for the Social Studies. She also takes advantage of professional development opportunities and publications offered by these organizations. In addition, she is active in the Texas Geography Alliance which offers opportunities for student and teacher growth and in the World Affairs Council. Because of her relationship with the World Affairs Council, she runs a Junior World Affairs Council club which allows her to support students from the school who have an interest in current events and international topics.

Nicole views the lessons she designs as two pieces of a puzzle that must fit together. There is the content that must be covered and there are the strategies that are used to help students gain a genuine understanding of that content. She admits that when she first started teaching she would use direct instruction. As a new teacher she wanted to be sure to say everything that the students needed to know. “I was sort of more worried about me getting the information out and then sort of expecting them to make meaning out of it and learn it.” Nicole now describes her approach to teaching quite differently. “I definitely think that the single most important thing is to have the students play the primary role in their learning. And that may be them reading and writing but I think discussion is also really important. If they can explain something to each other then you know that there is genuine understanding there. I was involved in a professional development situation and the leader said something that just really clicked with me and that was—only the student can create meaning for themselves. If you explain something they’re still only getting that at the level of sort of understanding it. They have to work through it, do something with it before they get genuine meaning. And so always in lessons I am trying to make that happen.”

PMI Chart

	P luses (Benefits)	M inuses (Drawbacks)	I nteresting Questions/Implications
Using Guiding Questions			
Probing Questions			
Visual Prompts			
Graphic Organizers			
Similarities and Differences			
Varied Reading Strategies			
Student Engagement and Choices			
Role Playing			
Formative and Summative Assessment			